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KNX Technical Reference Manual
Universal dimming actuators

Universal dimming actuators
6197/12-500
6197/13-500
6197/14-500
6197/15-500
6197/52-500
6197/53-500

The new universal dimming actuators are suitable for controlling incandescent lamps, 230 V halogen lamps, low-voltage halogen lamps with conventional or electronic transformers, and dimmable energy-saving halogen lamps. They are MDRC devices of ProM design.

All new: a variable concept allows the parallel switching of several channels. This allows the actuator to be perfectly adapted to the connected load.

Power and productivity
for a better world™

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1 Safety instructions

Work on the 230 V power supply system must only be performed by specialist staff.
Disconnect the mains power supply prior to mounting and/or disassembly!
Failure to observe the installation and operating instructions may result in fire or other hazards.

Disclaimer
The content of this printed material has been checked for compliance with hardware and software. However, no liability can be assumed for any deviations that may still occur. Any necessary corrections will be implemented in future versions of this manual.
Please advise us of any suggestions concerning the manual's improvement you may have.

2 Connection

The electrical connection is made via screw terminals. The description of the terminals is found on the housing. The connection to KNX is made with the enclosed bus connection terminal. An LS 16 is to be used as circuit-breaker.

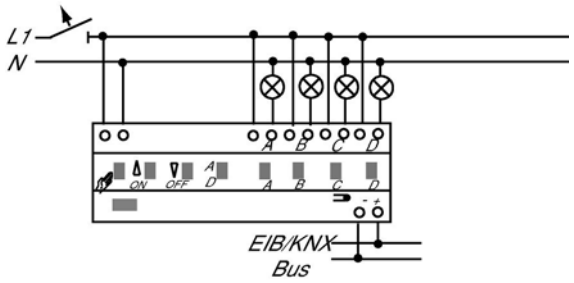


Fig. 1: Single-phase operation

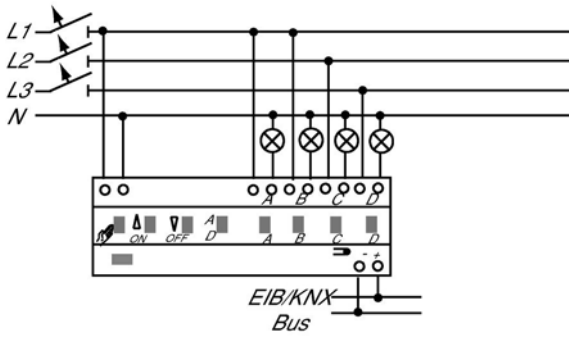


Fig. 2: Polyphase operation

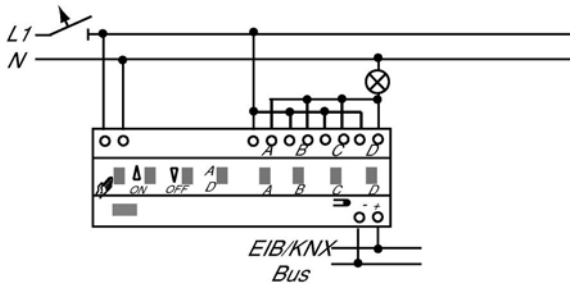


Fig. 3: Parallel switching of channels

Note

When operating with several single-phase earth leakage circuit breakers there is the risk of voltage displacement between the phases. This can impair the function of the device.

3 Technical data

Attribute	Value	
Power supply	230 V AC ± 10%, 50/60 Hz	
Standby power loss (dependent on the number of occupied channels)	1.0 – 1.5 W	
Connecting terminals • Screw terminal	 1 - 6 mm^2	
EIB / KNX connection	Bus connecting terminal, screwless	
10-pole user interface	For local programming and updating via commissioning interface/adapter	
Power output	6197/52-500 6197/53-500	1
	6197/12-500 6197/13-500 6197/15-500	4
	6197/14-500	6
Switching voltage	230 V AC, 50/60 Hz	
Switching capacity	6197/12-500 = 4 x 10 – 210 W/VA to 1 x 840 W / VA 6197/13-500 = 4 x 10 – 315 W/VA to 1 x 1260 W / VA 6197/14-500 = 6 x 40 – 315 W/VA to 1 x 1890 W / VA 6197/15-500 = 4 x 40 – 600 W/VA to 1 x 2400 W / VA 6197/52 = 1 x 100 – 1260 W/VA 6197/53 = 1 x 200 – 2400 W/VA	
Power loss per channel at full load	1 %	
Protection	IP20 according to DIN EN 60529	
Temperature range (during operation)	-5 °C to 45 °C	
Short-circuit protection	electronic	
Overload protection	electronic	
Width	6197/12-500 6197/13-500 6197/52-500	144mm / 8 TE
	6197/14-500 6197/15-500 6197/53-500	216 mm / 12 part units

4 Start-up

The device performs an automatic group formation at the start-up. The group formation can then be carried out directly on the device or via the PowerTool commissioning software (from version 1.2.3).

Group formation via PowerTool 1.2.x

The device is preset as 4 or 6-channel device in PowerTool under parameter setting "MDRC dimmer/general function/group formation".
If channels on the device are bridged for load increases, this is to be imaged in the commissioning software. For this, a dimmer group is created in the software for each channel. A dimmer group can consist of only one or of several dimmer channels.

Note

After the installation of PowerTool software version 1.2.3 the universal dimming actuators must have the new firmware V2.2 or higher (supplied as from CW 04/2011). Devices with the current firmware status are identified with a label on the front of the device. If your device does not have this label, the device is to be updated to firmware version V2.2 before starting the application.

Manual group formation on the device

Group formation can be carried out directly on the device. Proceed as described under item "Manual group formation".

Note

When carrying out the manual group formation on the device, the device performs a reset. This deletes the program from the device. The device then carries out an automatic group formation with load detection.
After downloading the project via the KNX bus or locally on the device with the commissioning interface / adapter, the manual group formation function is inactive.

5 Update

The 10-pole interface on the front of the device makes the device capable of being updated via the commissioning interface / adapter.
The status of the firmware is identifiable via a label or can be read via the commissioning interface / adapter.
The firmware version of the bus coupler can be displayed on the adapter as described in the following:

1. Switch the device on.
2. Navigate with the button to menu item "Status of device".
3. Confirm the selection with "OK".
4. The current firmware of the device (e.g. version 01.00) and the connected device are displayed.
5. Exit the menu item with "ESC".

The current firmware for downloading is located in the Support centre.
To install the current firmware on the device proceed as follows:

1. Create the following directory on the SD card: EMIBUPD.
2. Copy the required firmware into this directory, e.g. "6x20_v1.upd".
3. Connect the adapter with the enclosed flat cable with the 10-pole user interface of the bus coupler, FM.
4. Navigate with the button to menu item "SD card".
5. Confirm the selection with "OK".
6. In this directory select the folder "EMIBUPD".
7. In this directory select the file for updating, e.g. "6x20_v1.upd".
8. Confirm the selection with "OK".
9. The firmware update starts. The progress is shown in the display via a bar graph.
10. After the successful download, "OK" appears in the display.
11. Exit the directory via the "ESC" key.

Note
If a device is brought into operation with PowerTool 1.2.3 with firmware version 1.4 or 1.6, the device displays the following behaviour:
The device can be activated up to two times via the KNX bus. After this the device will change to manual mode and the button "Manual operation" on the device lights up red. By deactivating the manual mode the device can again be activated up to two times via the KNX bus. The behaviour is then repeated as described.
Because the device is not compatible with PowerTool 1.2.x, the device must be updated to firmware 2.2.

6 Parallel connection of channels

The channels can be arbitrarily switched in parallel for increasing the power. The universal dimming actuator detects the parallel connection automatically after the mains power supply is applied.

Caution

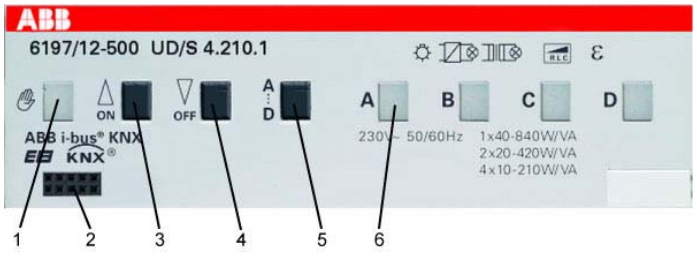
For the parallel switching of channels, these must be connected to the same phase. In case of different phases, the dimmer will be destroyed during parallel switching.
Operation with isolating transformer networks with a connected load of ≤ 10 kVA is not allowed!

Manual group formation

Group formation of outputs is carried out manually via the commissioning software (v 1.2.3) or directly on the device if it has not yet been parameterized via the bus.

Procedure for manual group formation:

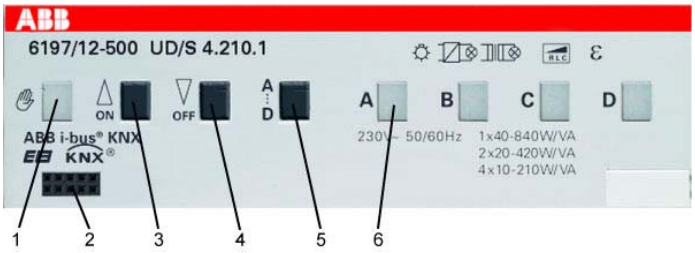
- Simultaneously activate local control buttons (1) and channel selection (5) for 4 sec. As soon as the LEDs for the channel display (6) flash green, keep the ON-/ OFF buttons (3+4) pressed simultaneously until the channel display LED (6) of channel A flashes red. Channel A is now selected.
- The first channel of the first group is selected with the channel selection button (5). If this is channel A, the button needs not be pressed.
- Activation with the ON button (3). The corresponding channel display now lights up continuously red.
- Additional channels can be added with selection and pressing.
- One complete group is confirmed by pressing the OFF button (4). The channel displays (6) of this group go out and the first free single channel flashes red. A further group can now be formed.
- If the OFF button (4) is pressed again after the formation of a group, manual group formation ends and the configuration is saved. If no entry is made in the manual group mode for 30 sec., also the manual group formation is ended. Confirmed groups have been saved.



1 **Manual operation (local control)**
2 **Interface commissioning adapter (from firmware version 1.0.0.3)**
3 **ON, switching on / dimming brighter**
4 **OFF, switching off / dimming darker**
5 **Channel selection**
6 **Channel display**

7 Operation

4-channel device



1	**Manual operation (local control)**
2	**Interface commissioning adapter (from firmware version 1.0.0.3)**
3	**ON, switching on / dimming brighter**
4	**OFF, switching off / dimming darker**
5	**Channel selection**
6	**Channel display**

Switchover, manual use - KNX operation

To operate the dimmer on the unit, press button (1). If the LED on the button lights up red the channels can be operated manually. Activation via the bus is blocked.

Switching on/off, dimming darker/brighter

The selected channel can be switched on or dimmed brighter with the ON button (3) and switched off or dimmed darker with the OFF button (4).

Channel status

Signalling channel ON/OFF via green channel LED (6):

- Channel OFF: channel LED goes out.
- Channel ON: channel LED shows continuous light.

Error messages

In case of an error, the local control button (1) begins to flash. Errors are displayed via different flashing cycles of the related red channel LED (6). To signal the errors, press the local control (1). They are displayed as longs as it is pressed:

1. Excess temperature: 1 flash.
2. Short-circuit: 2 flashes.
3. Wire break or missing load: 3 flashes.
   (Here the device is to be operated under load)
4. Overvoltage: 4 flashes.
5. Internal protective shutdown (e.g. defective output) 5 flashes.

- If an error occurs during operation, the channel is deactivated. The green channel LED goes out.
- When again activated, a check is made if the error still exists. (re-activation delay of 30 sec.).

Manual switchover of operating mode

The universal dimming actuator detects the connected load automatically after the mains voltage is applied. If problems arise, the operating mode can be set individually on the device for each channel.

- Activation of local operation (red LED of the local operation (1) is illuminated)
- Selection of the channel or group (feedback signal via red channel LED (6))

Note

The operating mode switchover is only possible when the channel is switched off. The green channel LED is off.
From version 2.2:
Manual switchover of operating mode and manual group formation are not possible via the bus after the device has been successfully programmed.

– Simultaneous activation of the ON-/ OFF buttons (3 + 4).
- Operate both buttons for 4 seconds.
- After the 4 seconds have expired, the green channel LED (6) flashes 5 times as confirmation that the operating mode was changed.

After a power failure the dimmer returns to the manually changed operating mode.

Reset

Resetting the manually set operating mode and manually formed groups to the factory setting.

- Simultaneous operation of local control (**1**) and channel selection (5) for 4 sec.
- After the expiry of 4 seconds the automatic load detection is activated and a load test will be carried out.

After a reset the dimmer automatically performs the load test and groups parallel outputs together.

8 Commissioning

The physical address is assigned and the parameters are set with the Engineering Tool Software ETS (from version ETS3d). The appropriate commissioning tool is to be used for configuring parameters. During initial commissioning and prior to connection, the device can be operated manually via the local control.

When changing from PowerTool version 1.1.11., 1.1.12, 1.1.23 or 1.1.53 to PowerTool 1.2.x, the changeover is to be set on "automatic" via parameter setting "MDRC dimmer/general function/group formation“ when no manual group formation and/or load detection was carried out on the device.

If a manual group formation and/or load detection was carried out, the manual parameterization is to be imaged in PowerTool 1.2.x and loaded into the device via KNX.

Caution

A waiting period of 30 seconds is to be observed when re-activating via circuit breakers.
It should be noted that when commissioning with the commissioning interface / adapter 6149/21 the firmware version from 1.0.0.3 is used in the adapter.

Caution

The dimmers are not to be operated without load. The dimmers carry out an automatic load test during commissioning. The channels / groups will not be recognized when commissioning without load.

9 Object descriptions

9.1 Switch object

Switching on occurs via this 1-bit communication object for receipt of an ON telegram.

The receipt of an OFF telegram switches off. This communication object is only visible if the "Switching status" parameter is set to "via own object", i.e. the object does not send out status telegrams.

Object, switch object

No.	Object name	Data type	Flags
0	Switch object	1 Bit EIS1 / DPT 1.001	K, S

Switching on occurs via the following 1-bit communication object when an ON telegram is received.

The receipt of an OFF telegram switches off. This communication object is only visible if the "Switching status" parameter is set to "via switch object". This means that if the dimming actuator is switched on or dimmed, a status telegram is also sent out with the corresponding dimming value via this object. An ON telegram when switched on, or the value greater than "0" was called up, and an OFF telegram when the output was switched off or was dimmed out.

Object, switch object

No.	Object name	Data type	Flags
0	Switch object	1 Bit EIS1 / DPT 1.001	K, L, S, Ü

9.2 Relative dimming

Dimming according to the KNX standard (EIS2) takes place via this 4-bit communication object. Start-stop dimming or step-type dimming can be selected.

0 = Stop
1 = 100% dimming darker
2 = 50% dimming darker
3 = 25% dimming darker
4 = 12.5% dimming darker
5 = 6.25% dimming darker
6 = 3.2% dimming darker
7 = 1.6% dimming darker
8 = Stop
9 = 100% dimming brighter
10 = 50% dimming brighter
11 = 25% dimming brighter
12 = 12.5% dimming brighter
13 = 6.25% dimming brighter
14 = 3.2% dimming brighter
15 = 1.6% dimming brighter

Object, relative dimming

No.	Object name	Data type	Flags
1	Relative dimming	4 Bit EIS2 / DPT 3.007	K, S

9.3 Value

The output is dimmed to the corresponding value via this 1-byte communication object for receipt of a value telegram.

This communication object is only visible if the "Status dimming value" parameter is set to "via own object". This means that the object does not send out status telegrams.

Object, value

No.	Object name	Data type	Flags
2	Value	1 Byte EIS6 / DPT 5.001	K, Ü

The output is dimmed to the corresponding value via the following 1-byte communication object when a value telegram is received.

This communication object is only visible if the "Status dimming value" parameter is set to "via value object". This means that if the dimming actuator is switched on or dimmed, a status telegram is also sent out with the corresponding dimming value via this object.

Object, value

No.	Object name	Data type	Flags
2	Value	1 Byte EIS6 / DPT 5.001	K, L, S, Ü

9.4 Enable

The dimming actuator can temporarily be blocked via this 1-bit communication object.

Whether the dimming actuator is blocked for receipt of an ON or OFF telegram depends on the setting of the "Object value enable object" parameter.

Object, enable

No.	Object name	Data type	Flags
3	Enable	1 Bit EIS1 / DPT 1.001	K, S

9.5 Response switching

The status of the dimming actuator is sent on the bus via this 1-bit communication object.

This communication object is only visible if the "Switching status" parameter is set to "via own object". This means that if the dimming actuator is switched on or dimmed, a status telegram is also sent out via this object. An ON telegram when switched on or the value greater than "0" was called up, and an OFF telegram when the output was switched off or was dimmed out.

Object, response switching

No.	Object name	Data type	Flags
4	Response switching	1 Bit EIS1 / DPT 1.001	K, L, Ü

9.6 Response value

The status of the dimming actuator is sent on the bus via this 1-byte communication object.

This communication object is only visible if the "Status dimming value" parameter is set to "via own object". This means that if the dimming actuator is switched on or dimmed, a status telegram is also sent out with the corresponding dimming value via this object. This communication object is only visible if the "Switching status" parameter is set to "via own object". This means that if the dimming actuator is switched on or dimmed, a status telegram is also sent out via this object. An ON telegram when switched on or the value greater than "0" was called up, and an OFF telegram when the output was switched off or was dimmed out.

Object, response value

No.	Object name	Data type	Flags
5	Response value	1 Byte EIS6 / DPT 5.001	K, L, Ü

9.7 Error

A telegram can be sent on the bus via this 1-byte communication object in case of a fault.

The error messages correspond to the messages that are displayed on the device via the error LED (multiple flashing). These are the following errors in detail:

Error type	Sent-out 1-byte value	Number of flashing error LEDs
No error	0	0
Excess temperature	1	1
Short-circuit	2	2
Wire break or missing load	3	3
Overvoltage	4	4
Serious hardware error	5	5

Object, error

No.	Object name	Data type	Flags
6	Error	1 Byte EIS14 / DPT 5.010	K, L, Ü

9.8 Dimming speed for switching on

Via this 2-byte communication object it is possible to modify the dimming speed without having to place the dimming actuator into operation again. Values from 0 to 65,535 can be received here. Here value 0 means 0 s and value 65,535 means 6,553,5 s. Speed values received are written into the memory of the dimming actuator and are retained when the bus voltage fails and is again returned.

The communication object is only visible if the "Dimming speed at switching on via data point modifiable" parameter is activated.

Object, dimming speed for switching on

No.	Object name	Data type	Flags
7	Dimming speed for switching on	2 Byte / DPT 7.004	K, S, A

Via the following 2-byte communication object it is possible to modify the dimming speed without having to place the dimming actuator into operation again. Values from 0 to 65,535 can be received here. Here value 0 means 0 s and value 65,535 means 6,553.5 s. The speed values received are written into the memory of the dimming actuator and are retained when the bus voltage fails and is again returned.

The communication object is only visible if parameters "Dimming speed at switching on via data point modifiable" and "Data point status" are activated. The last setting has the effect that after bus voltage failure and return the speed values of linked communication objects are read automatically (I = reading on initialisation).

Object, dimming speed for switching on

No.	Object name	Data type	Flags
7	Dimming speed for switching on	2 Byte / DPT 7.004	K, S, Ü, A, I

9.9 Dimming speed for switching off

Via this 2-byte communication object it is possible to modify the dimming speed without having to place the dimming actuator into operation again. Values from 0 to 65,535 can be received here. Here value 0 means 0 s and value 65,535 means 6,553,5 s. Speed values received are written into the memory of the dimming actuator and are retained when the bus voltage fails and is again returned.

The communication object is only visible if the "Dimming speed for switching off via data point modifiable" parameter is activated. The communication object is only visible if the "Dimming speed at switching on via data point modifiable" parameter is activated.

Object, dimming speed for switching off

No.	Object name	Data type	Flags
8	Dimming speed for switching off	2 Byte / DPT 7.004	K, S, A

Via the following 2-byte communication object it is possible to modify the dimming speed without having to place the dimming actuator into operation again. Values from 0 to 65,535 can be received here. Here value 0 means 0 s and value 65,535 means 6,553.5 s. The speed values received are written into the memory of the dimming actuator and are retained when the bus voltage fails and is again returned.

The communication object is only visible if parameters "Dimming speed at switching off via data point modifiable" and "Data point status" are activated. The last setting has the effect that after bus voltage failure and return the speed values of linked communication objects are read automatically (I = reading on initialisation).

Object, dimming speed for switching off

No.	Object name	Data type	Flags
8	Dimming speed for switching off	2 Byte / DPT 7.004	K, S, Ü, A, I

9.10 Relative dimming speed for dimming brighter

Via this 2-byte communication object it is possible to modify the dimming speed without having to place the dimming actuator into operation again. Values from 0 to 65,535 can be received here. Here value 0 means 0 s and value 65,535 means 6,553,5 s. Speed values received are written into the memory of the dimming actuator and are retained when the bus voltage fails and is again returned.

The communication object is only visible if the "Dimming speed for the relative dimming brighter via data point modifiable" parameter is activated.

Object, relative dimming speed for dimming brighter

No.	Object name	Data type	Flags
9	Relative dimming speed for dimming brighter	2 Byte / DPT 7.004	K, S, A

Via the following 2-byte communication object it is possible to modify the dimming speed without having to place the dimming actuator into operation again. Values from 0 to 65,535 can be received here. Here value 0 means 0 s and value 65,535 means 6,553.5 s. Speed values received are written into the memory of the dimming actuator and are retained when the bus voltage fails and is again returned.

The communication object is only visible if parameters "Dimming speed for the relative dimming brighter via data point modifiable" and "Data point status" are activated. The last setting has the effect that after bus voltage failure and return the speed values of linked communication objects are read automatically (I = reading on initialisation).

Object, relative dimming speed for dimming brighter

No.	Object name	Data type	Flags
9	Relative dimming speed for dimming brighter	2 Byte / DPT 7.004	K, S, Ü, A, I

9.11 Relative dimming speed for dimming darker

Via this 2-byte communication object it is possible to modify the dimming speed without having to place the dimming actuator into operation again. Values from 0 to 65,535 can be received here. Here value 0 means 0 s and value 65,535 means 6,553,5 s. Speed values received are written into the memory of the dimming actuator and are retained when the bus voltage fails and is again returned.

The communication object is only visible if the "Dimming speed for the relative dimming darker via data point modifiable" parameter is activated.

Object, relative dimming speed for dimming darker

No.	Object name	Data type	Flags
10	Relative dimming speed for dimming darker	2 Byte / DPT 7.004	K, S, A

Via the following 2-byte communication object it is possible to modify the dimming speed without having to place the dimming actuator into operation again. Values from 0 to 65,535 can be received here. Here value 0 means 0 s and value 65,535 means 6,553.5 s. Speed values received are written into the memory of the dimming actuator and are retained when the bus voltage fails and is again returned.

The communication object is only visible if parameters "Dimming speed for the relative dimming darker via data point modifiable" and "Data point status" are activated. The last setting has the effect that after bus voltage failure and return the speed values of linked communication objects are read automatically (I = reading on initialisation).

Object, relative dimming speed for dimming darker

No.	Object name	Data type	Flags
10	Relative dimming speed for dimming darker	2 Byte / DPT 7.004	K, S, Ü, A, I

9.12 Absolute dimming speed for dimming brighter

Via this 2-byte communication object it is possible to modify the dimming speed without having to place the dimming actuator into operation again. Values from 0 to 65,535 can be received here. Here value 0 means 0 s and value 65,535 means 6,553,5 s. Speed values received are written into the memory of the dimming actuator and are retained when the bus voltage fails and is again returned.

The communication object is only visible if the "Dimming speed for the absolute dimming brighter via data point modifiable" parameter is activated.

Object, absolute dimming speed for dimming brighter

No.	Object name	Data type	Flags
11	Absolute dimming speed for dimming brighter	2 Byte / DPT 7.004	K, S, A

Via the following 2-byte communication object it is possible to modify the dimming speed without having to place the dimming actuator into operation again. Values from 0 to 65,535 can be received here. Here value 0 means 0 s and value 65,535 means 6,553.5 s. Speed values received are written into the memory of the dimming actuator and are retained when the bus voltage fails and is again returned.

The communication object is only visible if parameters "Dimming speed for the absolute dimming brighter via data point modifiable" and "Data point status" are activated. The last setting has the effect that after bus voltage failure and return the speed values of linked communication objects are read automatically (I = reading on initialisation).

Object, absolute dimming speed for dimming brighter

No.	Object name	Data type	Flags
11	Absolute dimming speed for dimming brighter	2 Byte / DPT 7.004	K, S, Ü, A, I

9.13 Absolute dimming speed for dimming darker

Via this 2-byte communication object it is possible to modify the dimming speed without having to place the dimming actuator into operation again. Values from 0 to 65,535 can be received here. Here value 0 means 0 s and value 65,535 means 6,553,5 s. Speed values received are written into the memory of the dimming actuator and are retained when the bus voltage fails and is again returned.

The communication object is only visible if the "Dimming speed for the absolute dimming darker via data point modifiable" parameter is activated.

Object, absolute dimming speed for dimming darker

No.	Object name	Data type	Flags
10	Absolute dimming speed for dimming darker	2 Byte / DPT 7.004	K, S, A

Via the following 2-byte communication object it is possible to modify the dimming speed without having to place the dimming actuator into operation again. Values from 0 to 65,535 can be received here. Here value 0 means 0 s and value 65,535 means 6,553.5 s. Speed values received are written into the memory of the dimming actuator and are retained when the bus voltage fails and is again returned.

The communication object is only visible if parameters "Dimming speed for absolute dimming darker via data point modifiable" and "Data point status" are activated. The last setting has the effect that after bus voltage failure and return the speed values of linked communication objects are read automatically (I = reading on initialisation).

Object, absolute dimming speed for dimming darker

No.	Object name	Data type	Flags
10	Absolute dimming speed for dimming darker	2 Byte / DPT 7.004	K, S, Ü, A, I

9.14 Delay

Telegrams can be received via the "Input" object using the "Delay" application. The telegrams received are sent out on the "Output" object with a set delay time.
The object types for "Input" and "Output" can be collectively parameterised for different applications.

Delay objects

No.	Object name	Data type	Flags
0	Input (1 Bit)	1 Bit EIS1 / DPT 1.001	C, W
0	Input (1 Bit)	1 Bit EIS7 / DPT 1.008	C, W
0	Input (1 Bit)	1 Bit EIS7 / DPT 1.007	C, W
0	Input (1 Byte 0..100 %)	1 Byte EIS6 / DPT 5.001	C, W
0	Input (1 Byte 0..255)	1 Byte EIS14 / DPT 5.010	C, W
0	Input (2 Byte Float)	2 Byte EIS5 / DPT 9.xxx	C, W
0	Input (2 Byte Signed)	2 Byte EIS10 / DPT 8.001	C, W
0	Input (2 Byte Unsigned)	2 Byte EIS10 / DPT 7.001	C, W
0	Input (4 Byte Float)	4 Byte EIS9 / DPT 14.xxx	C, W
0	Input (4 Byte Signed)	4 Byte EIS11 / DPT 13.001	C, W
0	Input (4 Byte Unsigned)	4 Byte EIS11 / DPT 12.001	C, W
1	Output (1 Bit)	1 Bit EIS1 / DPT 1.001	C, T
1	Output (1 Bit)	1 Bit EIS7 / DPT 1.008	C, T
1	Output (1 Bit)	1 Bit EIS7 / DPT 1.007	C, T
1	Output (1 Byte 0..100 %)	1 Byte EIS6 / DPT 5.001	C, T
1	Output (1 Byte 0..255)	1 Byte EIS14 / DPT 5.010	C, T
1	Output (2 Byte Float)	2 Byte EIS5 / DPT 9.xxx	C, T
1	Output (2 Byte Signed)	2 Byte EIS10 / DPT 7.001	C, T
1	Output (2 Byte Unsigned)	2 Byte EIS10 / DPT 7.001	C, T
1	Output (4 Byte Float)	4 Byte EIS9 / DPT 14.xxx	C, T
1	Output (4 Byte Signed)	4 Byte EIS11 / DPT 13.001	C, T
1	Output (4 Byte Unsigned)	4 Byte EIS11 / DPT 12.001	C, T
2	Delay time (2 Byte)	2 Byte EIS10 / DPT 7.001	C, R, W

9.15 Staircase lighting

With the "Staircase lighting" application, switching telegrams or value telegrams can be provided with a light-on time. Depending on the parameterisation, the application shows different communication objects:

- a 1-bit object for input and output

If an ON telegram is received via the "Input/Output" object, the light-on time is started immediately. This can be a light-on time of 00:10 min to 88:45 min, which is adjustable in 0.1 s steps. After expiration of the light-on time, the "Input/Output" object sends an OFF telegram.

- two 1-bit objects for input and output
- and two 1-byte objects for input and output

If a telegram is received via the "Input" object, the light-on time is started immediately and a telegram with the same value of the telegram received on the input is sent out on the "Output" object. This can be a light-on time of 00:10 min to 88:45 min, which is adjustable in 0.1 s steps. After expiration of the light-on time, the "Output" object sends out an OFF telegram (1-bit) or a telegram with the value "0" (1-byte).

Via two additional communication objects, it is possible to specify the light-on time and the switch-off prewarning time. The 2-byte values received are written to the memory of the device and are retained even after a bus power failure and subsequent return of voltage.

Staircase lighting objects

No.	Object name	Data type	Flags
0	Input (1 Bit)	1 Bit EIS1 / DPT 1.001	C, W
0	Input (1 Byte)	1 Bit EIS14 / DPT 5.010	C, W
0	Input_Output (1 Bit)	1 Bit EIS1 / DPT 1.001	C, W, T
1	Light-on time (2 Byte)	2 Byte EIS10 / DPT 7.001	C, R, W
2	Switch-off pre-warning	2 Byte EIS10 / DPT 7.001	C, R, W
3	Output (1 Bit)	1 Bit EIS1 / DPT 1.001	C, T
3	Output (1 Byte)	1 Bit EIS14 / DPT 5.010	C, T

9.16 Light scene actuator

With the "Light scene actuator" application, it is possible to call up scenes that are stored in the device via the receipt of a scene number on the 1-byte communication object "Scene call-up". A maximum of eight scenes with up to eight actuator objects can be created.
For triggering different actuators, the size of the actuator groups communication objects can be set under the "Actuator group type" parameter.
The user has the option of saving the scenes himself. A corresponding save telegram must be received for this (see the description of the individual parameters).

Light scene actuator objects

No.	Object name	Data type	Flags
0	Light scene call-up (1 Byte)	1 Byte / DPT18.001	C, W, U
1…10	Actuator group A [B…J] (1-bit switching)	1 Bit EIS1 / DPT 1.001	C, W, T, U
1…10	Actuator group A [B…J] (1-bit Venetian blind)	1 Bit EIS7 / DPT 1.008	C, W, T, U
1…10	Actuator group A [B…J] (1 Byte 0..100 %)	1 Byte EIS6 / DPT 5.001	C, W, T, U
1…10	Actuator group A [B…J] (1-byte light scene number)	1 Byte / DPT 18.001	C, W, T, U
1…10	Actuator group A [B…J] (Temperature value absolute)	2 Byte EIS5 / DPT 9.001	C, W, T, U
10…19	Enable scene 1 [Scene 2 … Scene 10]	1 Bit EIS1 / DPT 1.001	C, W, T

9.17 Sequence

With the "Sequence " application it is possible to send out multiple telegrams with different values in a predefined sequence consecutively over the same object.
In contrast to the scene, the "Sequence" application has only one communication object on which up to twelve individual values are consecutively sent in twelve firmly set times. The times can be freely set from 1 s to 12 h. The "Sequence" application lends itself to controlling showrooms for example.
The function can be temporarily blocked via an enable object.

Sequence objects

No.	Object name	Data type	Flags
0	Sequence value (1-bit switching)	1 Bit EIS1 / DPT 1.001	C, W, T, U
0	Sequence value (1 Byte 0..100 %)	1 Byte EIS6 / DPT 5.001	C, W, T, U
0	Sequence value (1 Byte 0..255)	1 Byte EIS14 / DPT 5.010	C, W, T, U
0	Sequence value (1-byte light scene number)	1 Byte / DPT 18.001	C, W, T, U
0	Sequence value (2 Byte Float)	2 Byte EIS5 / DPT 9.xxx	C, W, T, U
0	Sequence value (2 Byte Unsigned)	2 Byte EIS10 / DPT 7.001	C, W, T, U
1	Sequence start	1 Bit EIS1 / DPT 1.001	C, W
2	Sequence status	1 Bit EIS1 / DPT 1.001	C, T
4	Enable	1 Bit EIS1 / DPT 1.001	C, W

9.18 Cyclic telegram

Via the "Cyclic telegram" application and after receipt of a telegram on the "Input" object, a telegram with the same volume is cyclically sent out on the "Cyclic output" object.
The object types for "Input" and "Output" can be collectively parameterised for the different applications.
The times for cyclic sending on the "Output" object are adjustable.
Via an additional "Enable" object, there is the option of temporarily blocking the function.

Cyclic telegram objects

No.	Object name	Data type	Flags
0	Input (1-bit switching)	1 Bit EIS1 / DPT 1.001	C, W
0	Input (1-bit alarm)	1 Bit EIS1 / DPT 1.001	C, W
0	Input (1 Byte 0..100 %)	1 Byte EIS6 / DPT 5.001	C, W
0	Input (1 Byte 0..255)	1 Byte EIS14 / DPT 5.010	C, W
0	Input (2 Byte Float)	2 Byte EIS5 / DPT 9.xxx	C, W
0	Input (2 Byte Signed)	2 Byte EIS10 / DPT 8.001	C, W
0	Input (2 Byte Unsigned)	2 Byte EIS10 / DPT 7.001	C, W
0	Input (2-byte temperature)	2 Byte EIS5 / DPT 9.001	C, W
0	Input (4 Byte Float)	4 Byte EIS9 / DPT 14.xxx	C, W
0	Input (4 Byte Signed)	4 Byte EIS11 / DPT 13.001	C, W
0	Input (4 Byte Unsigned)	4 Byte EIS11 / DPT 12.001	C, W
1	Output (1-bit switching)	1 Bit EIS1 / DPT 1.001	C, T
1	Output (1-bit alarm)	1 Bit EIS1 / DPT 1.001	C, T
1	Output (1 Byte 0..100 %)	1 Byte EIS6 / DPT 5.001	C, T
1	Output (1 Byte 0..255)	1 Byte EIS14 / DPT 5.010	C, T
1	Output (2 Byte Float)	2 Byte EIS5 / DPT 9.xxx	C, T
1	Output (2 Byte Signed)	2 Byte EIS10 / DPT 8.001	C, T
1	Output (2 Byte Unsigned)	2 Byte EIS10 / DPT 7.001	C, T
1	Output (2-byte temperature)	2 Byte EIS5 / DPT 9.001	C, T
1	Output (4 Byte Float)	4 Byte EIS9 / DPT 14.xxx	C, T
1	Output (4 Byte Signed)	4 Byte EIS11 / DPT 13.001	C, T
1	Output (4 Byte Unsigned)	4 Byte EIS11 / DPT 12.001	C, T
2	Enable	1 Bit EIS1 / DPT 1.001	C, W

9.19 Flashing

In order to trigger a flashing sequence on the output object, a telegram must be received on the input object beforehand. The "Flashing" parameter specifies whether the flashing sequence is started with an ON or an OFF telegram on the input object. Alternatively, the flashing sequence can be also be started with a "Change of state", i.e. if the input signal switches from "0" to "1" or from "1" to "0".

Flashing objects

No.	Object name	Data type	Flags
0	Input	1 Bit EIS1 / DPT 1.001	C, W
1	Output	1 Bit EIS1 / DPT 1.001	C, T

9.20 Logic

Logic objects

No.	Object name	Data type	Flags
0	Output (1 Bit)	1 Bit EIS1 / DPT 1.001	C, W, T
0	Output (1 Byte)	1 Byte EIS14 / DPT 5.010	C, W, T
1	Input 1 (1 Bit)	1 Bit EIS1 / DPT 1.001	C, W, U
1	Input 1 (1 Byte)	1 Byte EIS14 / DPT 5.010	C, W, U
2	Input 2 (1 Bit)	1 Bit EIS1 / DPT 1.001	C, W, U
2	Input 2 (1 Byte)	1 Byte EIS14 / DPT 5.010	C, W, U
3	Input 3 (1 Bit)	1 Bit EIS1 / DPT 1.001	C, W, U
3	Input 3 (1 Byte)	1 Byte EIS14 / DPT 5.010	C, W, U
4	Input 4 (1 Bit)	1 Bit EIS1 / DPT 1.001	C, W, U
4	Input 4 (1 Byte)	1 Byte EIS14 / DPT 5.010	C, W, U
5	Input 5 (1 Bit)	1 Bit EIS1 / DPT 1.001	C, W, U
5	Input 5 (1 Byte)	1 Byte EIS14 / DPT 5.010	C, W, U
6	Input 6 (1 Bit)	1 Bit EIS1 / DPT 1.001	C, W, U
6	Input 6 (1 Byte)	1 Byte EIS14 / DPT 5.010	C, W, U
7	Input 7 (1 Bit)	1 Bit EIS1 / DPT 1.001	C, W, U
7	Input 7 (1 Byte)	1 Byte EIS14 / DPT 5.010	C, W, U
8	Input 8 (1 Bit)	1 Bit EIS1 / DPT 1.001	C, W, U
8	Input 8 (1 Byte)	1 Byte EIS14 / DPT 5.010	C, W, U
9	Input 9 (1 Bit)	1 Bit EIS1 / DPT 1.001	C, W, U
9	Input 9 (1 Byte)	1 Byte EIS14 / DPT 5.010	C, W, U
10	Input 10 (1 Bit)	1 Bit EIS1 / DPT 1.001	C, W, U
10	Input 10 (1 Byte)	1 Byte EIS14 / DPT 5.010	C, W, U

9.21 Gate

The "Gate" application allows specific signals to be filtered and the signal flow to be temporarily blocked. The function has three communication objects: "Control input", "Input" and "Output".
The input or output object can assume different sizes.
The bit size can be freely assigned with the "Not assigned" setting. This means that the first internal or external group address/action that is assigned and already connected to some other communication object will specify the size.
The control can occur from "Input to output" or also from "Output to input", provided the control input allows this. Enabling via the control input can occur via an ON or an OFF telegram.
If, for example, the "Control input" setting is set to "ON telegram", only telegrams from the input are transmitted to the output, if prior to this the control input has received an ON telegram.
It is also possible to block signals via the "Filter function" setting. Either "nothing is filtered out" or the signal "ON is filtered out" or the signal "OFF is filtered out". This function is always necessary, for example, when only the ON telegram is interesting for a sensor and the sensor does not offer any filter function in its application program.

Gate objects

No.	Object name	Data type	Flags
0	Input	-	C, W, T
1	Output	-	C, W, T
2	Control input	1 Bit EIS1 / DPT 1.001	C, W

9.22 Min/Max value transducer

Up to eight input values can be compared with each other using the "Min/max value transducer" application. The application can output the highest input value, the smallest input value or the average of all input values on the output.
The size of the input objects, and with it also the size of the output object can be adapted for the most diverse applications.
You can select from the following object types:
- 1-byte 0..100 %, for comparison of percent values
- 1-byte 0..255, for the comparison of decimal values between 0 and 255
- 2-byte float, for the comparison of 2-byte floating point values (physical values such as temperature, brightness value etc.)
- 2-byte signed, for the comparison of decimal values between -32,768 and +32,767
- 2-byte unsigned, for the comparison of decimal values between 0 and 65,535
- 4-byte float, for the comparison of 4-byte floating point values (physical values such as acceleration, electrical current, work etc.)
- 4-byte signed, for the comparison of decimal values between -2,147,483,648 and 2,147,483,647
- 4-byte unsigned, for the comparison of decimal values between 0 and 4,294,967,295

Hint:
With whole numbers the average value is rounded.

Min/Max value transducer objects

No.	Object name	Data type	Flags
0	Output (1 Byte 0..100 %)	1 Byte EIS6 / DPT 5.001	C, T
0	Output (1 Byte 0..255)	1 Byte EIS14 / DPT 5.010	C, T
0	Output (2 Byte Float)	2 Byte EIS5 / DPT 9.xxx	C, T
0	Output (2 Byte Signed)	2 Byte EIS10 / DPT 8.001	C, T
0	Output (2 Byte Unsigned)	2 Byte EIS10 / DPT 7.001	C, T
0	Output (4 Byte Float)	4 Byte EIS9 / DPT 14.xxx	C, T
0	Output (4 Byte Signed)	4 Byte EIS11 / DPT 13.001	C, T
0	Output (4 Byte Unsigned)	4 Byte EIS11 / DPT 12.001	C, T
1…10	Input 1 [2…10] (1 Byte 0..100 %)	1 Byte EIS6 / DPT 5.001	C, W
1…10	Input 1 [2…10] (1 Byte 0..255)	1 Byte EIS14 / DPT 5.010	C, W
1…10	Input 1 [2…10] (2 Byte Float)	2 Byte EIS5 / DPT 9.xxx	C, W
1…10	Input 1 [2…10] (2 Byte Signed)	2 Byte EIS10 / DPT 8.001	C, W
1…10	Input 1 (2 Byte Unsigned)	2 Byte EIS10 / DPT 7.001	C, W
1…10	Input 1 [2…10] (4 Byte Float)	4 Byte EIS9 / DPT 14.xxx	C, W
1…10	Input 1 [2…10] (4 Byte Signed)	4 Byte EIS11 / DPT 13.001	C, W
1…10	Input 1 [2…10] (4 Byte Unsigned)	4 Byte EIS11 / DPT 12.001	C, W

9.23 Threshold value / hysteresis

With the "Threshold value / Hysteresis" application, value telegrams can be received on an input communication object and compared with threshold values specified in the device.
Predefined values are sent out on the communication "Output" communication object if the upper or lower thresholds are exceeded. The size of the object can be adjusted for different applications.
The function can be temporarily blocked via an enable object.
If the value of the lower threshold lies above the value for the upper threshold, the function is not executed.

Threshold value / hysteresis objects

No.	Object name	Data type	Flags
0	Input (1 Byte 0..100 %)	1 Byte EIS6 / DPT 5.001	C, W
0	Input (1 Byte 0..255)	1 Byte EIS14 / DPT 5.010	C, W
0	Input (2 Byte Float)	2 Byte EIS5 / DPT 9.xxx	C, W
0	Input (2 Byte Signed)	2 Byte EIS10 / DPT 8.001	C, W
0	Input (2 Byte Unsigned)	2 Byte EIS10 / DPT 7.001	C, W
0	Input (4 Byte Float)	4 Byte EIS9 / DPT 14.xxx	C, W
0	Input (4 Byte Signed)	4 Byte EIS11 / DPT 12.001	C, W
0	Input (4 Byte Unsigned)	4 Byte EIS11 / DPT 13.001	C, W
1	Output (1 Bit)	1 Bit EIS1 / DPT 1.001	C, T
1	Output (1 Byte 0..100 %)	1 Byte EIS6 / DPT 5.001	C, T
1	Output (1 Byte 0..255)	1 Byte EIS14 / DPT 5.010	C, T
2	Enable	1 Bit EIS1 / DPT 1.001	C, W

9.24 PWM inverter

With the "PWM inverter" application, a 1-byte input signal can be converted to a 1-bit signal or a 1-byte signal via an equivalent pulse-width modulation. This function is required, for instance, if a room temperature controller issues a constant control value that controls a switching heating actuator (for electrothermal actuating drives).
The function of the 1-byte sized activation is required if the room temperature controller can only send out constant control values or a constant control value is required for other functions (such as central supply line temperature control).
There is the option of activating a force-position. The force-position is used for certain events such as the opening of a window or for moving a heating actuator that is to be activated to a specific position for the dew point alarm.
If "Alert" is activated, the additional communication object "Fault" is available. A fault will then occur if the "Input" object has received no further telegram within a certain period of time. Possible reasons for this could be, for example, that the associated room temperature controller fails or that during a cross-line function the telegrams no longer pass the coupler. In this case an ON telegram is sent out on the "Fault" communication object and the "Input" object assumes the "Value for fault".
An additional "Enable" object provides the option of temporarily blocking the function.

PWM transducer objects

No.	Object name	Data type	Flags
0	Input (1 Byte)	1 Bit EIS1 / DPT 1.001	C, W
1	Output (1 Bit)	1 Bit EIS1 / DPT 1.001	C, T
1	Output (1 Byte 0..100 %)	1 Byte EIS6 / DPT 5.001	C, T
2	Enable	1 Bit EIS1 / DPT 1.001	C, W
3	Fault	1 Bit EIS1 / DPT 1.001	C, T
4	Force-position	1 Bit EIS1 / DPT 1.001	C, W

9.25 Priority

The "Priority" application has 3 communication objects, a 1-bit object "Switch input", a 2-bit object "Input priority" and a 1-bit object "Output". The telegrams received on the "Switch input" are transferred to the "Output" depending on the state of the "Input priority" object.
The 2-bit object "Input priority" can receive and differentiate between four different values (0, 1, 2 and 3). Here, the "Output" object is positively driven. Three different states are differentiated:
- "Input priority" has value "3": the value that is present on "Switch input" has no meaning. The "Output" is switched to positively driven and has the value "1".
– "Input priority" has the value "2". The value that is present on "Switch input" has no meaning. The "Output" is switched off positively driven and has the value "0".
– "Input priority" has the value "1" or "0". The "Output" is not positively driven. The "Switch input" is linked to the status bit of the priority object OR and transferred to the "Output".
During a positive drive, changes of the "Switch input" object are saved, even if the current state on the "Output" object does not immediately change through this. If the positive drive is terminated, a telegram transmission on the "Output" occurs according to the current value of the "Switch input" object.

Priority objects

No.	Object name	Data type	Flags
0	Switch input	1 Bit EIS1 / DPT 1.001	C, W
1	Priority input	2 Bit EIS8 / DPT 2.001	C, W
2	Output	1 Bit EIS1 / DPT 1.001	C, T

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